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EXAMINER

ZIMMERMAN, GLENN

ART UNIT PAPER NUMBER

2879

DATE MAILED: 11/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/683,218

Applicant(s)

DAKIN ET AL.

Examiner

Glenn Zimmerman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-10,12-14,16-18,20, 21,23 and 24 is/are rejected.
- 7) ☒ Claim(s) 1,3,11,15,17-19 and 22-24 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claims 1, 3, 17, 18, 23 and 24 are objected to because of the following informalities: In claim 1 line(s) 3, the examiner suggests changing "halides" to "the halides". Claim 1 line(s) 2 contains the parenthetical wording "(H)", and the wording enclosed in parenthesis does not have patentable weight since parenthesis are used for referencing characters of an element and such wording should not be used for claim limitations. The examiner suggests removing the parenthesis. Claim 1 line(s) 3 contains the parenthetical wording "(RE)", and the wording enclosed in parenthesis does not have patentable weight since parenthesis are used for referencing characters of an element and such wording should not be used for claim limitations. The examiner suggests removing the parenthesis. In claim 3 line(s) 1, the examiner suggests changing "of halides" to "the halides". In claim 17 line(s) 2, the examiner suggests changing "vertical" to "vertical.". In claim 18 line(s) 2, the examiner suggests changing "horizontal" to "horizontal.". Claim 23 line(s) 2 contains the parenthetical wording "(H)", and the wording enclosed in parenthesis does not have patentable weight since parenthesis are used for referencing characters of an element and such wording should not be used for claim limitations. The examiner suggests removing the parenthesis. Claim 24 line(s) 1 contains the parenthetical wording "(H)", and the wording enclosed in parenthesis does not have patentable weight since parenthesis are used for referencing

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characters of an element and such wording should not be used for claim limitations. The examiner suggests removing the parenthesis.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11, 15, 17 and 19-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 11 uses the term "Ra". The claim should contain wording describing what "Ra" is.

Claim 15 uses the wording "total". The claim should contain wording describing what "total" is.

Claim 15 leaves out what the ratio describes and is measuring.

Claim 17 uses the wording "Vop". The claim should contain wording describing what "Vop" is.

Claim 19 uses the wording "total". The claim should contain wording describing what "total" is.

Claim 19 leaves out what the ratio describes and is measuring.

Claim 20 leaves out what the percentage describes and is measuring

Claim 21 leaves out what the percentage describes and is measuring

A 112 2nd paragraph rejection has been determined for claim 11, as written about above. However, a further evaluation of the claim will be done while interpreting "an Ra" as "a coloring rendering Ra".

A 112 2nd paragraph rejection has been determined for claim 15, as written about above. However, a further evaluation of the claim will be done while interpreting "total" as "the total number of moles of halides".

A 112 2nd paragraph rejection has been determined for claim 15, as written about above. However, a further evaluation of the claim will be done while interpreting "wherein:" as "having a molar ratio percentage".

A 112 2nd paragraph rejection has been determined for claim 17, as written about above. However, a further evaluation of the claim will be done while interpreting "Vop" as "operating voltage Vop".

A 112 2nd paragraph rejection has been determined for claim 19, as written about above. However, a further evaluation of the claim will be done while interpreting "total" as "the total number of moles of halides".

A 112 2nd paragraph rejection has been determined for claim 19, as written about above. However, a further evaluation of the claim will be done while interpreting "wherein:" as "having a molar ratio percentage".

A 112 2nd paragraph rejection has been determined for claim 20, as written about above. However, a further evaluation of the claim will be done while interpreting "ReH"

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as "ReH/the total number of moles of halides". Also, a further evaluation of the claim will be done while interpreting "wherein:" as "having a molar ratio percentage".

A 112 2nd paragraph rejection has been determined for claim 21, as written about above. However, a further evaluation of the claim will be done while interpreting "NaH" as "NaH/the total number of moles of halides". Also, a further evaluation of the claim will be done while interpreting "wherein:" as "having a molar ratio percentage".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 8-10 12, 14 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Caruso U.S. Patent 5,698,948.

Regarding claims 1 and 4, Caruso discloses a metal halide lamp (**title**) comprised of a ceramic discharge chamber (**ceramic wall of chamber Fig. 2 ref. 31**) containing an ionizable fill, the fill comprising Hg, and halides (H) of Na, Tl, alkaline earth metal, and $0 < \text{rare earth element (RE)} < 15\%$ as a molar fraction of halides (**col. 2 lines 63-67**). The examiners calculations show that the molar fraction of the rare earth halide Dyl_3 to the total halide is 5.60%.

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Regarding claim 8, Caruso discloses the lamp of claim 4 wherein the ionizable fill includes only a single rare earth element (**col. 2 line 65**).

Regarding claims 9 and 10, Caruso discloses the lamp of claim 1 having a color temperature between about 2500 and 4500 °K (**col. 1 lines 28-30 and 50-59**).

Regarding claim 12, Caruso discloses the lamp of claim 1 wherein the halide is selected from chlorine, bromine, iodine and mixtures thereof (**col. 2 lines 62-67**).

Regarding claim 14, Caruso discloses the lamp of claim 1 having a molar ratio wherein: $2 \leq \text{NaH}/(\text{TIH} + \text{ReH}_3) \leq 10$. The examiner's calculations show that this value is 3.00.

Regarding claim 21, Caruso discloses the lamp of claim 1 having a molar ratio percentage $45\% \leq \text{NaH}/\text{the total number of moles of halides} \leq 86\%$. The examiner calculates this value to be 70%.

Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Russell et al. U.S. Patent 5,212,424.

Regarding claim 24, Russell et al. disclose a dose for a metal halide lamp comprised of mercury, halides H of sodium, thallium, an alkaline earth metal, at least three rare earth elements, and cesium (**col. 3 lines 56-68 and col. 4 lines 1 and 2**).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Caruso U.S. Patent 5,698,948 in view of Omura et al. U.S. Patent 5,512,800.

Regarding claim 2, Caruso teaches all the limitations of claim 2, but fails to teach wherein the fill comprises Cs halide. Omura et al. in the analogous art teach a wherein the fill comprises Cs halide (**col. 5 lines 29-32**). Additionally, Omura et al. teach incorporation of such a Cs halide to improve stabilization of the arc discharge (**col. 5 line 60**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a Cs halide fill in the lamp of Caruso since such a modification would stabilize the arc discharge as taught by Omura et al.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Caruso U.S. Patent 5,698,948 in view of Ooyama et al. U.S. Patent 5,973,454.

Regarding claim 5, Caruso teaches all the limitations of claim 5, but fail to teach the rare earth element is Ho. Ooyama et al. in the analogous art teach a Ho (**col. 3 lines 16-20**). Additionally, Ooyama et al. teach incorporation of such a rare element to improve color reproduction (**col. 3 lines 20-21**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use Ho in the fill of Caruso since such a modification would improve color reproduction as taught by Ooyama et al.

Claims 6, 7 and 16-18, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caruso U.S. Patent 5,698,948.

Regarding claims 6, 7, 16-18 and 20, Caruso discloses the claimed invention except for the limitation of the lamp having a power greater than 200 watts. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980). Thus, it would have been obvious to one of ordinary skills in the art at the time the invention was made to have a lamp having a power greater than 200 watts, since discovering an optimum value of a result variable is considered within the skills of the art.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Caruso U.S. Patent 5,698,948 in view of Wesselink et al. U.S. Patent 3,852,630.

Regarding claim 13, Caruso teaches all the limitations of claim 13, but fail to teach the alkaline earth metal comprises calcium. Wesselink et al. in the analogous art teach a calcium halide fill (**col. 3 lines 17-23**). Additionally, Wesselink et al. teach incorporation of such a fill to improve the lifetime of the lamp and provide a less aggressive halide (**col.3 lines 18-23**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use calcium halide fill in lamp of Caruso since such a modification would improve the lifetime of the lamp and provide a less aggressive halide as taught by Wesselink et al.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Russell et al. U.S. Patent 5,212,424 in view of Kobayashi et al U.S. Patent 4,503,356.

Regarding claim 23, Russell et al. teach a metal halide lamp comprised of an ionizable fill, the fill comprising mercury, and halides H of sodium, thallium, an alkaline

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earth metal, at least one rare earth element and cesium (**col. 3 lines 56-58 and col. 4 lines 1 and 2**), but fail to teach a ceramic discharge chamber. Kobayashi et al. in the analogous art teach a ceramic discharge chamber (**col. 11 line 25; translucent ceramic arc tube Fig. 12 ref. 41**). Additionally, Kobayashi et al. teach incorporation of such a ceramic discharge chamber to improve the withstanding of vapors of such metals as sodium or metal halides and have a high luminous efficiency (**col. 1 lines 20-25**).

Consequently it would have been obvious to a person having ordinary skill in the art at the time the invention was made to use a ceramic discharge chamber in the lamp of Russell et al. since such a modification would improve the withstanding of vapors of such metals as sodium or metal halides and have a high luminous efficiency as taught by Kobayashi et al.

Allowable Subject Matter

Claims 3, 11, 15, 19 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claim 3, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a lamp including the combination of all the limitations as set forth in claim 3, and specifically the specified molar fractions given in the chart of claim 3 could not be found elsewhere in prior art.

Regarding claim 11, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a lamp including the combination of all the limitations as set forth in claim 11, and specifically having a color rendering Ra greater than 80 could not be found elsewhere in prior art.

Regarding claim 15, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a lamp including the combination of all the limitations as set forth in claim 15, and specifically $15\% \leq \text{CaH}/\text{total} \leq 45\%$ could not be found elsewhere in prior art.

Regarding claim 19, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a lamp including the combination of all the limitations as set forth in claim 19, and specifically $2\% \leq \text{TIH}/\text{total} \leq 5\%$ could not be found elsewhere in prior art.

Regarding claim 22, the following is an examiner's statement of reasons for allowance: The prior art of record neither shows nor suggests a metal halide lamp including the combination of all the limitations as set forth in claim 22, and specifically a ceramic discharge chamber containing an ionizable fill, the fill comprising mercury, and halides of sodium, thallium, an alkaline earth metal and $0\% \leq$ at least 3 rare earth elements $\leq 15\%$ could not be found elsewhere in prior art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bamberg et al. U.S. Patent 3,761,758 disclose a Metal Halide

Lamp Containing Mercury, Light Emitting Metal, Sodium and Another Alkali Metal.

Heider et al. U.S. Patent 5,239,232 disclose a Light Balance Compensated Mercury Vapor and Halogen High-Pressure Discharge Lamp. Johnson et al. U.S. Patent 4,810,938 disclose a High Efficacy Electrodeless High Intensity Discharge Lamp. Inoue et al. U.S. Patent 4,445,067 disclose a High Pressure Metal Vapor Discharge Lamp with Radioactive Material Impregnated in Ceramic. Anderson U.S. Patent 4,023,059 discloses a High Pressure Light Emitting Electric Discharge Device. Eisemann U.S. Patent 6,400,084 discloses a Metal Halide Lamp. Kawai U.S. Patent 5,451,838 discloses a Metal Halide Lamp. Scott et al. U.S. Patent 6,294,871 disclose an Ultraviolet and Visible Filter for Ceramic Arc Tube Body. Bagley et al. U.S. Patent 3,564,328 disclose Ceramic Articles and Method of Fabrication. Yangitani et al. U.S. Patent 6,200,918 disclose a Corrosion Resistant Ceramic and a Production Method Thereof. Wei et al. U.S. Patent 5,861,714 disclose a Ceramic Envelope Device, Lamp with such a Device, and Method of Manufacture of Such Devices.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenn Zimmerman whose telephone number is (703) 308-8991. The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703) 305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is n/a.


Glenn Zimmerman
October 27, 2002


ASHOK PATEL
PRIMARY EXAMINER